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The role of social network sites in romantic relationships: Effects on jealousy
and relationship happiness

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Abstract

On social network sites (SNS), information about one's romantic partner is readily available and public for friends. The paper focuses on the negative (SNS jealousy) and positive (SNS relationship happiness) consequences of SNS use for romantic relationships. We examined whether relationship satisfaction, trait jealousy, SNS use and need for popularity predicted these emotional consequences of SNS use and tested the moderating role of self-esteem. For low self-esteem individuals, need for popularity predicted jealousy and relationship happiness. For high self-esteem individuals, SNS use for grooming was the main predictor. Low self-esteem individuals try to compensate their low self-esteem by creating an idealized picture. Undesirable information threatens this picture, and especially individuals with a high need for popularity react with SNS jealousy.

Introduction

Seeing that the romantic partner leaves comments on the Facebook wall of an attractive member of the opposite sex can induce jealousy (Muise, Christofides, & Desmarais, 2009). But if the partner publicly displays his or her affection on a social network site (SNS), can this also increase relationship happiness? And to what extent are these effects moderated by self-esteem? These are the central questions of this paper. SNS have become part of everyday life for many people. Research has mainly focused on self-presentation, privacy settings, or the consequences of SNS use for bridging and bonding capital (Buffardi & Campbell, 2008; Ellison, Steinfield, & Lampe, 2007; Krämer & Winter, 2008; Siibak, 2009; Steinfield, Ellison, & Lampe, 2008; Utz & Krämer, 2009). Up till now, relatively little research has focused on the effects of SNS on romantic relationships.

Muise et al. (2009) brought the attention to a negative effect Facebook use might have: increasing jealousy. The access to the partner's profile provides people with information they did not have before SNS came up; Muise et al. (2009) showed that people can become jealous if they see their partner interacting with potential romantic partners on Facebook. Although Facebook jealousy was mainly determined by trait jealousy, there was an additional effect of time spent on Facebook, indicating that SNS increase feelings of jealousy. The present paper builds on this research and extends it in several ways. First, the focus is not only on negative effects of SNS use on romantic relationships, but also on positive effects. Second, the paper focuses on the moderating role of self-esteem and examines the role of need for popularity.

SNS and romantic relationships: what is new?

SNS are profile sites that display the connections between users. Usually, users upload a profile picture and provide information about their education and

occupation, their favorite music, sport, movies, travel destinations, and so on. Unlike earlier forms of CMC such as usenet newsgroups or chats, SNS are "nonymous" online environments (Zhao, Grasmuck, & Martin, 2008). That is, users can be identified and found in real life. The profiles do not only entail identifying information, but they also present the social network of the user. The displayed relationships usually correspond to offline relationships and are therefore termed "anchored relationships" (Zhao et al., 2008). These characteristics make SNS a distinct type of virtual community. Comments posted on the wall or photos uploaded to the profile are usually shared at least with friends and acquaintances, if not even with all users of the SNS.

The largest and most well-known SNS is Facebook which has now more than 500 million active users according to their own statistics (Facebook, 2010). In the Netherlands, where this study has been conducted, Hyves is the most popular SNS. It has more than 10 million users (Hyves, 2010) and focuses on Dutch-speaking people. Like Facebook, it is a leisure-oriented SNS. There are less social games like MafiaWars or Farmville, but the remaining features are quite similar.

SNS are mainly used for the maintenance of social relationships, especially for upholding contact with weaker social ties (Ellison et al., 2007). However, they also offer a platform for (idealized) self-presentation. Impression management has been found to be an important motive for setting up and maintaining a profile on a SNS (Krämer & Winter, 2008). People create desirable identities on SNS and try to become popular among their friends (Zhao et al., 2008). For example, users deliberately choose pictures that make them look cool and popular (Siibak, 2009).

When it comes to romantic relationships, SNS can be used in several ways. Users can display their relationship status on the SNS, they can use a profile picture

that displays them together with the partner, or they can upload several pictures showing the couple. Additionally, users can communicate with and about the partner via the SNS. We distinguish three characteristics of SNS that, in our view, enable them to have a profound influence on romantic relationships.

A first characteristic of SNS is that they increase the amount of information that individuals receive about their partner. That is, if the partner is an active user of the SNS, the wall postings on the partner's profile and the postings left by the partner at friends' profiles reveal a lot of information about the partner's daily activities. There is anecdotal evidence that this information can induce jealousy – especially in long-distance relationships, when the partner makes new contacts at his or her distant location (Persch, 2007). SNS can thus fundamentally change the amount of information that is available to romantic partners. Even though people have always received information about their partner from friends or acquaintances, SNS centralize much of this information at one point.

A second characteristic is that SNS offer a socially accepted way of monitoring the partner. Jealous people may tend to show monitoring behavior such as searching the bags of their partner. However, they usually know that this behavior is not socially accepted and forms a trust violation in itself. Visiting the SNS profiles of friends and partner, however, is part of the SNS routine of many users. This may be done with the purpose to maintain contact (i.e., grooming), yet, in the process one has the opportunity to monitor the partner and check his or her activities. The boundary between visiting profiles for the purpose of grooming and monitoring is blurry. Consequently, SNS offer a way to monitor the partner without committing an obvious trust violation.

A third characteristic of SNS is that information that is relevant to the romantic relation is publicly displayed. This aspect may enhance positive and negative feelings about the partner's activities, because the information can be viewed by many people. Although many users make their profiles only available for friends (Utz & Krämer, 2009), *friend* has a broad meaning on a SNS, and many users have hundreds of friends. Opening at least parts of the profile also for friends of friends further increases the audience to vague acquaintances or even strangers. As a result, the impact of information found on the SNS might be stronger than the one of impact of information gained in a less public context (Afifi, Falato, & Weiner, 2001). Seeing on a SNS that the partner puts an arm around another member of the opposite sex might be experienced as a public self threat because this picture can be seen by all friends and acquaintances.

In the present research we investigate the extent to which the use of SNS has consequences for romantic relationships. Whereas Muise et al. (2009) focused on the negative effects (i.e., jealousy), the present paper will look at both, negative and positive effects. We do not assume that SNS use is bad or good for relationships per se; instead, we assume that the direction of the effects mainly depends on the relationship quality and the behavior of the partner. On the one hand, discovering via the SNS that the partner might be cheating might lead to jealous reactions. On the other hand, finding public expressions of love on the SNS could strengthen the relationship and induce relationship happiness (Mod, 2010). In addition, we expect that the need for popularity of the individual plays an important role because of the public character of information on a SNS. Moreover, self-esteem is expected to moderate the effects of SNS use on SNS jealousy and relationship happiness, because self-esteem has repeatedly been found to moderate processes in romantic relationships

(Cameron, Holmes, & Vorauer, 2009; Murray, Aloni, Holmes, Derrick, Stinson, & Leder, 2009; Murray, Leder, MacGregor, Holmes, Pinkus, & Harris, 2009). In the following, we first unfold our hypotheses about SNS use and jealousy, after which we turn to potential positive effects.

Jealousy

Romantic jealousy is a widely-studied phenomenon. Jealousy is defined as the emotional reaction on a threat to the relationship (Pfeiffer & Wong, 1989), and is one of the most prevalent, but also one of the most potentially destructive emotions in romantic relationships (Buunk & Bringle, 1987). Jealousy has often been viewed as multidimensional construct (e.g. Pfeiffer & Wong, 1989), and various typologies have been proposed (for an overview see Barelds & Barelds-Dijkstra, 2007). Some authors distinguish between dispositional and state jealousy (e.g., Bringle & Evenbeck, 1979; Rich, 1991). The first refers to jealousy as a trait, a relatively stable propensity to respond in a jealous way, the latter refers to jealousy as a reaction on a jealousy-evoking event.

Buunk (1991, 1997) differentiates between reactive, anxious, and possessive jealousy. Reactive jealousy refers mainly to the emotional reactions (anger, sadness) on emotional or sexual infidelity. Anxious jealousy has a strong cognitive component and involves ruminating about the possible infidelity of the partner. Possessive jealousy has a stronger behavioral component and includes monitoring behavior and trying to prevent the partner from having opposite sex friends. Reactive jealousy occurs as reaction to a real threat to the relationship, whereas anxious and possessive jealousy can also occur in the absence of a real threat. Barelds and Barelds-Dijkstra (2007) found that reactive jealousy was positively related to relationship quality. They assume that reactive jealousy signals caring for the partner. Anxious jealousy however

was negatively related to relationship quality, probably because it is often ungrounded and therefore causes distress in the relationship. In contrast to their hypotheses, possessive jealousy was unrelated to relationship quality.

SNS use and jealousy

Muise et al. (2009) focused specifically on Facebook related jealousy. These authors argued that the constant availability of information about the partner on the SNS contributes to jealousy. For their study they developed a scale to measure so-called Facebook jealousy - jealousy that arises from the use of Facebook. The scale asks about the likelihood of behaviors such as 'becoming jealous after seeing that your partner has received a wall message from someone of the opposite sex' or 'worrying that the partner becomes romantically involved with someone on Facebook'. The scale measures the likelihood of reactions in hypothetical situations. None of the items addresses the reactions on actual cheating (= reactive jealousy), but the reactions on typical SNS behaviors such as making friends, receiving or leaving wall messages or uploading pictures. It could therefore be interpreted as a measure of possessive and anxious jealousy. Adding a person of the opposite sex can be an indication of infidelity, but will in most cases be common SNS use.

In search of predictors of Facebook jealousy, Muise et al. (2009) tested several personality characteristics (self-esteem and trait jealousy, the general tendency to experience jealousy) and relationship variables (trust, commitment, relationship uncertainty). Trait jealousy, measured by self-report, showed the largest positive effect and explained, together with gender, 46% of the variance of Facebook jealousy. Women and jealous individuals exhibited higher levels of Facebook jealousy. Trust was the only relationship factor that had an effect. The higher relationship trust, the lower Facebook jealousy. Relationship uncertainty, commitment, and self-esteem had

no effect. However, time spent on Facebook explained an additional 2% of variance. The present research aims to replicate and extend these findings. However, we are more interested in the psychological processes underlying SNS jealousy than in simple gender effects. Gender will be included in all analyses, but the focus of the paper is on personality and relationship variables as well as indicators of SNS use. The first hypothesis is therefore:

H1: Trait jealousy is positively related to SNS jealousy.

In addition to trait jealousy, actual monitoring behavior, a more behavioral measure, could be considered as a potentially better predictor of SNS jealousy. Monitoring behavior is an aspect of possessive jealousy. Some items of the Facebook jealousy scale address online monitoring behavior such as checking the partner's profile on a regular basis or adding the partner's friends to the own profile to keep tabs on the partner. It seems likely that people who monitor their partner in various ways should also be more likely to experience jealousy when seeing rather harmless events such as public conversations of the partner on an SNS with persons of the opposite sex.

H2: Monitoring behavior is positively related to SNS jealousy.

Muise et al.'s (2009) main argument was that SNS make information more accessible. However, as we argued above, it is also socially more accepted to visit the partner's profile. SNS provide an opportunity to unobtrusively monitor the partner. This opportunity should be used by individuals who also tend to monitor their partner via other ways. Helsper and Whitty (2010) reported that in about 30% of married couples at least one partner has at least once secretly read the emails or SMS text messages of the partner. If monitoring the partner on a SNS is more socially accepted, people should be more likely to engage in SNS monitoring behavior than in

traditional monitoring behavior. Therefore, we also compare the levels of traditional and SNS monitoring behavior. An open research question is formulated:

RQ1: What is the level of SNS monitoring behavior compared to traditional monitoring behavior?

We also expect that SNS use is related to SNS jealousy. Muise et al. (2009) found a relationship between time spent on Facebook and Facebook jealousy. In addition to the time spent on the SNS, we expect that the psychological meaning and the type of use of the SNS may be more important predictors of experienced SNS jealousy. People who consider the SNS as an important part of their life should be more likely to experience SNS jealousy. To test for the effect of type of use of SNS we distinguish two goals people have for using SNS: presenting oneself on the profile and maintaining social contacts. Tufekci (2008) called the latter purpose grooming. We expect that SNS use for grooming increases SNS jealousy more than SNS use for updating the profile. Grooming involves browsing the profiles of friends and thereby increases the chance to encounter information that may evoke jealousy.

H3: SNS use, especially use for grooming, is positively related to SNS jealousy.

We further want to extend the work by Muise et al. (2009) by examining the role of need for popularity. Zhao et al. (2008) identified being popular among SNS friends as a central motivation for SNS use. Christofides, Muise, and Desmarais (2009) reported that need for popularity was related to self-disclosure on the SNS. People with a high need for popularity want to create an idealized image on the SNS. Being in a happy relationship is for many people part of such an image (Zhao et al., 2008). People with a high need for popularity might therefore also be more sensitive to cues that threaten this part of their self-presentation. They might be especially

sensitive to activities of their partner on a SNS that may harm the idealized relationship image they like to present. These are public at least within the circle of friends and acquaintances, and such public detections of transgressions are especially damaging for the relationship (Afifi et al., 2001). Individuals with a high need for popularity should therefore be more likely to experience SNS jealousy.

H4: Need for popularity is positively related to SNS jealousy.

Muise et al. (2009) did not find an effect of self-esteem on SNS jealousy. We argue that self-esteem has a moderating rather than a direct effect and expect that the link between need for popularity and SNS jealousy is qualified by self-esteem.

Jealousy develops in relationship threatening situations. According to Afifi et al. (2001), infidelity and other transgressions of implicitly or explicitly defined relationship rules pose a face threat. 'Face' relates to a desired identity that individuals present to others (Metts, 2000). Such a threat should be perceived as more severe by people with a low self-esteem. People with a high self-esteem usually have more trust in their self-worth and consequently also in the love of their partner. Therefore, self-esteem is an important moderator when it comes to romantic relationships. In general, low self-esteem individuals cope less successfully with various stress-situations in the relationship (Cameron et al., 2009; Murray, Aloni, et al., 2009; Murray, Leder, et al., 2009). The same is expected in the context of SNS jealousy. More specifically, we expect that the link between need for popularity and SNS jealousy is more pronounced for individuals with low self-esteem. These individuals are especially prone to compensate their low self-esteem by striving for acceptance of the peer group (Zywica & Danowski, 2008). For instance, when someone's partner leaves a comment at the profile of a member of the opposite sex, those with low self-esteem who additionally have a high need for popularity might be more threatened and

experience a higher level of SNS jealousy. Individuals with high self-esteem on the other hand are more self-assured and should not feel threatened so easily.

H5: Self-esteem moderates the effects of SNS use and need for popularity on SNS jealousy.

Apart from the specific effects of personality characteristics and SNS use, we also expect that SNS jealousy is influenced by relationship satisfaction. Barelds and Barelds-Dijkstra (2007) found that reactive jealousy was positively related to relationship quality, whereas anxious jealousy was negatively related to relationship quality. They also expected possessive jealousy to be negatively related to relationship quality, but this prediction was not confirmed. The SNS jealousy scale assesses the reactions on ambiguous and potentially threatening SNS behaviors, but not the reactions on actual cheating. Thus, it does not really measure reactive jealousy but covers mainly aspects of possessive and anxious jealousy. Therefore, we expect a negative relationship between SNS jealousy and relationship satisfaction.

H6: Relationship satisfaction is negatively related to SNS jealousy.

SNS use and relationship happiness

Prior research on Facebook use and romantic relationships has focused on the negative effects (Muisse et al., 2009), but there is evidence that SNS use can strengthen the relationships with friends and acquaintances (Ellison et al., 2007; Steinfield et al., 2008; Valenzuela, Park, & Kee, 2009). These studies found that SNS are especially useful for maintaining bridging capital, that is, weaker ties with acquaintances. However, there were also positive effects on bonding capital, strong ties with close friends. Therefore, we think that SNS use can also strengthen romantic relationships.

SNS can be used to display signs of commitment, for example, when a new partner sets the relationship status to 'in a relationship'. Mod (2010) found that changing the relationship status is a major step in a relationship and can also alter dynamics in the offline relationship. Mod (2010) also found that people publicly display their affection on SNS and that partners value these public signs of affection. These findings are based on interviews with eleven SNS users. We want to examine in a broader sample whether SNS use has also positive effects on romantic relationships. To examine positive effects of SNS use, we developed a scale that, similar to the Facebook jealousy scale, assessed the likelihood that people become happy when the partner displays certain behaviors such as posting a picture of his/her partner. We call this scale SNS relationship happiness for the remainder of the paper.

SNS happiness should for a great deal be determined by relationship satisfaction. If an individual is overall satisfied with the relationship, the individual is also more likely to experience positive emotions whilst browsing the favorite SNS.

H7: Relationship satisfaction is positively related to SNS relationship happiness.

Again, it is expected that the type of SNS use is more important than time spent on the SNS. SNS use for grooming is expected to have the strongest impact because grooming involves browsing of the profiles of friends and the partner. This might seem counterintuitive at the first glance because we also expected a positive relationship between grooming and SNS jealousy. The direction of the emotion is determined by the information found on the SNS, but people who frequently browse the profiles of friends are more likely to encounter information about the partner in wall postings or pictures than people who use SNS primarily for self-presentation. People who use the SNS for grooming should be more likely to experience SNS

relationship happiness while browsing, for instance when they encounter that their partner talked about the relationship with friends or has uploaded pictures showing the couple together.

H8: SNS use, especially use for grooming, is positively related to SNS relationship happiness.

Need for popularity should also predict SNS relationship happiness. People who find it more important to look popular on the SNS, should become more happy if their partner publicly displays positive aspects of the relationship.

H9: Need for popularity is positively related to SNS relationship happiness.

Self-esteem has been found to moderate the effects of SNS use on bridging capital (Ellison et al., 2007; Steinfield et al., 2008). Individuals with low self-esteem gained more than individuals with high self-esteem. The effects of SNS use on bonding capital were less strong and not moderated by self-esteem. Nevertheless, it seems plausible that low self-esteem individuals experience more happiness when their partner publicly displays “being in a relationship” compared to high self-esteem individuals. Therefore, the last hypothesis is:

H10: Self-esteem moderates the effects of SNS use and need for popularity on SNS relationship happiness.

Method

Participants.

An online survey was held among all students following a course on interpersonal communication ($N = 194$, 56 males and 138 females) at a large Dutch university. Of those, 103 (28 males and 75 females) were involved in a romantic relationship. Completing the survey that contained various personality measures and questions on SNS use took about half an hour. Only the data of respondents with a

relationship and the variables relevant for the current hypotheses are reported in this paper. The mean age of the participants was 22 years ($SD = 3.54$), and the mean relationship duration was 25.57 months ($SD = 24.98$).

Measures.

Relationship characteristics. Respondents were asked how many months they were in the relationship, and they indicated their relationship satisfaction on a five-point scale ranging from *not at all happy* to *very happy* ($M = 4.65$, $SD = .56$).

SNS use. People who had profiles on several SNS were asked to answer the questions for the SNS on which they were most active. For the vast majority (77%), this was Hyves, followed by Facebook (14%). Respondents were asked how often they logged in (*several times a day, daily, several times a week, once a week, several times a month, less often*). They were also asked in how far they agreed with statements such as "My favorite SNS is part of my everyday activity." These questions were taken from the SNS intensity scale by Ellison et al. (2007). Ellison et al. (2007) combined the Likert statements with the frequency of login; the present study used only the Likert items for the scale SNS intensity. The five items were averaged into a reliable scale ($\alpha = .90$).

SNS use for profile maintenance and grooming. Eleven items assessed what people actually did on the SNS. Respondents indicated how often they engaged in various activities on a seven-point scale ranging from 1 = *(almost) never* to 7 = *daily*. Five items referred to self-presentation and profile maintenance (e.g. "How often do you upload pictures?", "How often do you change your profile?", $\alpha = .76$), and six items referred to grooming (e.g., "How often do you visit the profiles of close friends?", "How often do you leave messages (krabbels, wallposts) on the profiles of acquaintances?", $\alpha = .85$)

SNS jealousy. The Facebook jealousy scale by Muise et al. (2009) was used. Only respondents whose partner had a profile on a SNS answered these questions. Respondents indicated on a seven-point scale ranging from 1 = *very unlikely* to 7 = *very likely* how likely they were to become jealous or upset after certain behavior of their partner on the SNS. The item "feel uneasy with your partner receiving a personal gift of someone of the opposite sex" was excluded because it is not possible to send gifts to other users on Hyves. The remaining 26 items were combined into one scale, $\alpha = .96$.

SNS relationship happiness. To assess the positive consequences of SNS use for romantic relationships, five items were created. Respondents indicated again their likelihood to experience certain feelings on a seven-point scale ranging from 1 = *very unlikely* to 7 = *very likely*. This time, they indicated their likelihood to experience positive emotions after certain behaviors of their partner. The behaviors were taken from the SNS jealousy scale and reformulated such that the subject was now the target of the action. Example items are "Become happy if your partner posted an accurate relationship status" or "Become happy if your partner posts pictures of him or herself with an arm around you". Only five items were used because the survey was already very long and because not all items could be transformed into comparable positive situations. The short scale was highly reliable, $\alpha = .91$.

Monitoring behavior. Three items in the style of Pfeiffer and Wong's (1989) behavioral jealousy subscale assessed traditional monitoring behavior. The goal was to contrast the socially accepted behavior of browsing the partners profile with socially unacceptable behaviors. The item "look through X's drawers, handbag, or pockets" was taken from Pfeiffer and Wong (1989), and two items were developed to capture the socially unacceptable use of new media: "How often do you secretly read

the text messages on your partner's mobile phone?" and "How often do you secretly read your partner's emails?" (see also Helsper & Whitty, 2010). Respondents indicated on a 7-point scale how often they engaged in these behaviors (1 = *never*, 7 = *all the time*). These three items formed a highly reliable scale, $\alpha = .91$.

SNS monitoring behavior. The SNS jealousy scale contains some items that explicitly address monitoring behavior. These four items (e.g., "monitor your partner's activities on the SNS") are used to contrast SNS monitoring behavior with traditional monitoring behavior. As said above, the items of the SNS jealousy scale were answered on a seven-point scale ranging from 1 = *very unlikely* to 7 = *very likely*.

Combining these four items results in a reliable scale, $\alpha = .80$.

Trait jealousy. Trait jealousy was measured with one-item. Respondents indicated their agreement with the statement that "jealous, mistrustful" adequately described them of a seven-point scale ranging from 1 = *disagree strongly* to 7 = *agree strongly*.

Need for popularity. Need for popularity was measured with seven items from the popularity scale by Santor, Messervey, and Kusumakar (2000). The original scale had twelve items, but the short version turned out to be reliable, $\alpha = .81$. An example item is "It's important that people think I'm popular." Again, respondents indicated their agreement with the statements on a seven-point scale.

Self-esteem. Self-esteem was measured with the Rosenberg scale (Rosenberg, 1979). This scale has ten items such as "I feel that I have a number of good qualities". Respondents agree their agreement with the statements on a seven-point scale. The items form a reliable scale, $\alpha = .86$. A median split was used to form groups of individuals with low and high self-esteem ($Md = 5.3$).

Results

Descriptive analysis

Table 1 displays the means and standard deviations as well as the intercorrelations between the measures. Respondents stated to be more likely to experience SNS relationship happiness ($M = 4.73$, $SD = 1.32$) than SNS jealousy ($M = 2.83$, $SD = 1.19$), $t(80) = -12.14$, $p < .001$. Note that the scales did not assess the likelihood of events (e.g., partner posts a comment on the wall of an ex), but the likelihood to experience happiness or jealousy when the partner showed a specific behavior. Low self-esteem individuals reported to experience more SNS jealousy ($M = 3.07$, $SD = 1.13$) than high self-esteem individuals ($M = 2.56$, $SD = 1.21$), $t(79) = 1.94$, $p < .05$, one-tailed. Low- and high self-esteem individuals did not differ in SNS relationship happiness ($M_s = 4.70$, $SD = 1.26$, vs. 4.75 , $SD = 1.41$, ns).

The scores on monitoring behavior indicate that about half of the participants reported that they engage in monitoring behavior at least every now and then. Nevertheless, as Table 2 shows, 70-80% of all respondents reported that they never or almost never searched their partners bags, or secretly read the text messages or emails they sent to somebody else. Only 10 to 17% had scores of 5 or higher. In contrast, the scores for SNS monitoring behavior were much higher (see Table 3). Table 3 shows that on the first three items about SNS monitoring, 30 to 35% of the respondents had an answer score of 5 or higher. Roughly 35% of the respondents reported that they were likely to visit their partners profile regularly. 30% reported that they would check their partner's profile if they were suspicious, and another 30% reported that they were likely to monitor the profile of the partner on a regular basis. Only the item "add your partner's friends to your SNS to keep tabs on your partner" received similar rejection rates as the items of the monitoring behavior scale. These descriptive results provide an answer to RQ1. They indicate that monitoring the partner on a SNS might

be more common and apparently socially more accepted than monitoring the partner offline.

Hypotheses testing

SNS jealousy. The first four hypotheses predicted that SNS jealousy would be related to trait jealousy (H1), monitoring behavior (H2), SNS use, especially use for grooming (H3), and need for popularity (H4). H6 expected a negative relationship with relationship satisfaction. To test the hypotheses these variables were simultaneously entered as predictors in a regression analysis, in which we also controlled for gender. The model explained 57% of the variance of SNS jealousy, $F(9,71) = 12.82, p < .001$. Trait jealousy was a marginally significant predictor of SNS jealousy, $\beta = .16, p = .06$. Monitoring behavior, $\beta = .40, p < .01$, and need for popularity, $\beta = .33, p < .01$, significantly predicted SNS jealousy, whereas the different types of SNS use (profile maintenance and grooming) and relationship satisfaction failed to reach significance, all t s < 1.61 . The results support H1, H2, and H4.

To examine the moderating role of self-esteem, separate regressions with SNS jealousy as dependent variable were calculated for low and high self-esteem subjects. In the first block, trait jealousy, monitoring behavior, relationship satisfaction, and gender were included as predictors. In the second block, frequency of login, SNS intensity, SNS use for profile maintenance, and SNS use for grooming were entered, and finally need for popularity was entered in the third block. Blockwise entering of the variables allowed us to detect whether the indicators of SNS use and need for popularity explained additional variance over and above the relationship variables and gender.

H5 predicted that the effects of SNS use and need for popularity would be moderated by self-esteem. That is, different Beta weights were expected for low and high self-esteem individuals. For individuals low in self-esteem, gender and relationship satisfaction had no significant effect. Entering trait jealousy, $\beta = .34, p < .05$) and monitoring behavior, $\beta = .42, p < .01$, resulted in an adjusted R^2 of .31. Entering the SNS use variables resulted in a non-significant increase of adjusted R^2 to .35. Entering need for popularity resulted in a significant increase of adjusted R^2 to .53. As can be seen in the left column of Table 4, monitoring behavior, $\beta = .31, p < .05$, and trait jealousy, $\beta = .32, p < .05$ were still significant predictors, but need for popularity had the strongest effect, $\beta = .48, p < .01$.

For individuals high in self-esteem, a slightly different picture emerged. The first block explained 47% of the variance, but only monitoring behavior had a significant effect, $\beta = .62, p < .001$. The SNS use variables increased the amount of explained variance significantly to an adjusted R^2 of .61. SNS use for grooming was the only significant predictor, $\beta = .61, p < .01$. Need for popularity contributed another 3% of explained variance, but this effect was only marginally significant. In the final model (right column of Table 4), monitoring behavior, $\beta = .54, p < .01$, and SNS use for grooming, $\beta = .64, p < .01$ predicted SNS jealousy. There were also marginally significant effects for need for popularity, $\beta = .23, p < .10$, frequency of login, $\beta = .35, p < .10$, and relationship satisfaction, $\beta = -.21, p < .10$.

Taken together, the results on SNS jealousy confirm H1, H2, and H4. Trait jealousy (H1), monitoring behavior (H2), and need for popularity (H4) were positively related to SNS jealousy. Moreover, as predicted by H5, self-esteem moderated the effects of SNS use and need for popularity on SNS jealousy. That is, the effect of need for popularity was much stronger for low self-esteem individuals,

and SNS use only had an effect for high self-esteem individuals. Trait jealousy was a significant predictor only for low self-esteem individuals. The effect of monitoring behavior, however, turned out to be stronger for high self-esteem individuals.

Relationship satisfaction had a marginally significant negative effect on SNS jealousy, but only for high self-esteem individuals. H6 received only partial support.

These results indicate that the effects of trait jealousy, monitoring behavior, and relationships satisfaction on SNS jealousy are also moderated by self-esteem.

SNS relationship happiness. With regard to SNS relationship happiness, it was expected that relationship satisfaction (H7), SNS use, especially for grooming (H8), and need for popularity (H9) would predict SNS relationship happiness. To test the hypotheses these variables and gender as control variable were simultaneously entered in a regression analysis. The model explained 27% of the variance in SNS relationship happiness, $F(7,73) = 5.27, p < .001$. Relationship satisfaction, $\beta = .29, p < .01$, frequency of login, $\beta = .37, p < .05$, and SNS use for grooming, $\beta = .34, p < .05$, predicted SNS relationship happiness. This supports H7 and H8. Inconsistent with H9, need for popularity had no significant effect, $\beta = .16, p < .15$.

To test the moderating role of self-esteem (H10), separate regression analyses predicting SNS relationship happiness for low and high self-esteem respondents were conducted. Gender and relationship satisfaction were added as predictors in block 1; the SNS use variables in block 2, and need for popularity was added in block 3.

For low self-esteem individuals, the following picture emerged. The first block explained 17% of the variance. Again, relationship satisfaction was positively related to SNS relationship happiness, $\beta = .39, p < .01$. There was also an effect for gender, $\beta = .30, p < .05$. Women tended to experience more SNS relationship happiness than men. Adding SNS use increased the adjusted R^2 to .30. This was driven by the effect

of frequency of login, $\beta = .64, p < .01$. The effect of gender was no longer significant, and the impact of relationship satisfaction became stronger. Adding need for popularity led to a marginally significant increase of adjusted R^2 to .35. As can be seen in the left column of Table 5, frequency of login, $\beta = .58, p < .05$, and relationship satisfaction, $\beta = .46, p < .01$, were the strongest predictors. Need for popularity had a marginal effect, $\beta = .28, p < .10$. There was also an unexpected marginal negative effect of SNS intensity, $\beta = -.46, p < .10$. No other effects were significant.

For high self-esteem individuals, a different picture emerged. Relationship satisfaction and gender did not have a significant effect in block 1, adjusted $R^2 = .01$. Adding SNS use increased the adjusted R^2 to .24. SNS use for grooming was the only significant predictor, $\beta = .59, p < .05$. Adding need for popularity did not contribute any explained variance. Thus, in the final model (right column of Table 5), use for grooming remained the only significant predictor, $\beta = .60, p < .05$.

Taken together, the results for SNS relationship happiness support H7 and H8: Relationships satisfaction and SNS use, especially use for grooming, predict higher SNS relationship happiness. More important, as predicted by H10, self-esteem moderated the effects on SNS relationship happiness. SNS use for grooming contributed only to SNS happiness of the high self-esteem individuals. For the low self-esteem individuals, frequency of login was the significant SNS use variable. Interestingly, SNS intensity had a marginal negative effect. H9 predicted an effect of need for popularity on SNS happiness. This effect was only marginally significant, and was only found for the low self-esteem individuals. H7 predicted an effect of relationship satisfaction on SNS happiness. This effect was only found for the low self-esteem individuals. These findings indicate that self-esteem moderates effects of

relationship satisfaction, SNS use and need for popularity on SNS relationship happiness.

Discussion

This paper focused on the role of SNS use in romantic relationships. It extended prior research on Facebook jealousy by Muise et al. (2009) by including need for popularity as additional predictor and by looking also at positive effects. Moreover, the paper focused on the moderating role of self-esteem. In general, people experienced more happiness than jealousy in reaction to the partner's activities on a SNS. However, low self-esteem individuals experienced more SNS jealousy than high self-esteem individuals, whereas these groups did not differ in experienced SNS relationship happiness. Self-esteem also moderated the effects of SNS use and need for popularity on SNS jealousy and SNS relationship happiness. For low self-esteem individuals, need for popularity, trait jealousy and monitoring behavior predicted SNS jealousy. For high self-esteem individuals, monitoring behavior and SNS use for grooming were the main predictors of SNS jealousy. SNS relationship happiness of the low self-esteem individuals was related to relationship satisfaction and frequency of login, whereas the SNS relationship happiness of the high self-esteem individuals was predicted by SNS use for grooming only.

Theoretical contributions

These results extend prior research in several ways. First, our research contributes to understanding the role of SNS for romantic relationships. Zhao et al. (2008) reported that SNS users express their affection to loved ones on their profiles; the present research showed that the partners are happy about this public display of affection. Similar results have been reported by Mod (2010), but based on a small qualitative study. Prior research has already shown that SNS use can increase

bridging, and, to a lesser degree, also bonding capital (Ellison et al., 2007; Steinfield et al., 2008, Valenzuela et al., 2009). The present research extends these findings by showing the benefits for romantic relationships, a specific form of bonding capital.

Second, our findings extend research on jealousy by comparing monitoring behavior on a SNS with traditional monitoring behavior. SNS do not only provide people with much more information about their partner, it is also socially more accepted to monitor the partner's activities via a SNS. About half of the sample never engaged in traditional monitoring behavior such as searching the partner's bags or secretly reading the partner's emails. However, respondents were quite likely to monitor the partner's SNS profile. These results should be treated with some caution because SNS monitoring was assessed with a different scale (likelihood vs. frequency), but it seems plausible that monitoring the partner on a SNS is socially more acceptable because of the public character of SNS. Moreover, SNS monitoring, in contrast to traditional monitoring, is not per se an intentional activity. Information about the actions of SNS friends is automatically pushed into the user's news feed, and is not secretly pulled from the partner's profile.

SNS jealousy. Information on a SNS is public, at least within the circle of friends. Afifi et al. (2001) found that the method of infidelity discovery matters. The degree to which knowledge about the infidelity is public had an impact; unsolicited third party discoveries, e.g., a friend telling you that your partner cheats on you, led to the largest decrease in relationship quality. The authors argue that public information is more face threatening than a private confession. Encountering on the SNS that the partner is in contact with former or potential romantic partners can therefore be regarded as face threatening. We expected that self-esteem and need for popularity influence the extent to which people show jealous reactions in such situations.

Indeed, the effects were different for low and high self-esteem individuals. In general, low self-esteem individuals experienced higher levels of SNS jealousy than high self-esteem individuals. Moreover, SNS jealousy was predicted by different variables. For low self-esteem individuals, need for popularity had a strong impact. The higher their need for popularity, the higher their likelihood to experience SNS jealousy. Zywicka and Danowski (2008) have shown that low self-esteem individuals compensate their lack of self-esteem by striving for popularity among friends on the SNS. The present results suggest that low self-esteem individuals may compensate their lack of self-esteem by publicly displaying a happy relationship. If they additionally have a high need for popularity, they are especially sensitive to negative cues and experience more jealousy when encountering relationship threatening comments or pictures on a SNS. Afifi et al. (2001) found that public discovery of relational transgression is perceived as more severe than a private disclosure by the partner. The present effects of need for popularity confirm the relevance of the private-public dimension and extend the prior findings. Especially individuals with a high need for popularity try to present an idealized self on the SNS, and a happy relationship would be part of that. If the partner posts information that thwarts this picture, they are more likely to experience SNS jealousy.

For the high self-esteem individuals, in contrast, need for popularity only had a marginal effect. It seems that high self-esteem individuals are less dependent on the public display of a happy relationship than low self-esteem individuals. Instead, it appears that for this group the actual experienced relationship satisfaction is more important than the public display of the relation. They are more likely to experience SNS jealousy when their relationship satisfaction is low. This marginal negative effect replicates and further specifies the findings of Barelds and Barelds-Dijkstra (2007).

The SNS jealousy scale contains items which are related to anxious jealousy, but also items that are more related to possessive jealousy. This mix of items might explain why the effect was only marginally significant. Future research should focus more on the different forms of jealousy.

For both high and low self-esteem individuals offline monitoring behavior predicted SNS jealousy. Several items of the SNS jealousy scale focus on aspects of possessive jealousy, and monitoring is an indicator of possessive jealousy. Therefore, it is not surprising that the two concepts are related. Trait jealousy, however, was only a significant predictor for low self-esteem individuals, and not for high self-esteem individuals. Trait jealousy is a relatively stable personality characteristic that is not related to a specific partner. It appears that, especially low self-esteem individuals with a high score on trait jealousy interpret the behaviors of their partner on the SNS as more threatening, and consequently experience SNS jealousy.

Taken together, the results on SNS jealousy indicate that especially low self-esteem individuals experience relationship threats on SNS. This qualifies earlier findings that suggest that mainly low self-esteem individuals profit from SNS use, at least, when it comes to the maintenance of bridging capital (Steinfeld, et al., 2008).

SNS relationship happiness. In general, we found that individuals were more likely to experience relationship happiness than to experience SNS jealousy. This is an important contribution to earlier findings. Our study demonstrates that SNS have the potential to increase relationship satisfaction and happiness, because they allow for public demonstrations of affection and relationship commitment.

Although low and high self-esteem individuals did not differ in their experience of relationship happiness, we again observed different patterns in the predictors for these two groups. For low self-esteem individuals, SNS relationship

happiness was determined by relationship satisfaction, but also by frequency of login. SNS use explained additional variance, showing that using SNS can further enhance already existing feelings of relationship happiness. Interestingly, there was a marginal, but negative effect of SNS intensity. If people perceive SNS as part of their daily routine, they experience less SNS relationship happiness. It could be that these individuals have higher expectations and consequently attach more significance to signs of affection posted by their partner. Need for popularity also had a marginal positive effect. This further corroborates the assumption that low self-esteem individuals compensate their low self-esteem with the display of a happy relationship, and become more happy if they succeed in it.

For high self-esteem individuals, only SNS use for grooming contributed to SNS relationship happiness, indicating that SNS relationship happiness as well as SNS jealousy of high self-esteem individuals is mainly based on the content encountered on the profiles of friends or the partner.

Muise et al. (2009) used time spent on Facebook as only SNS use variable; and this variable explained 2% of the variance. In the present study, we measured more aspects of SNS use, and these explained much more variance (13 – 23%). This also allowed us to reveal interesting effects of SNS use variables. SNS use for grooming was the main predictor of SNS jealousy as well as SNS relationship happiness of high self-esteem, but not of low self esteem, individuals. What people actually do on a SNS is therefore more important than how much time they spend on a SNS. Future research should also focus more on the kind of SNS use than on the quantity of SNS use.

Strengths and limitations

We would like to note some strengths and limitations of the current research. One strength is that the sample consisted of a whole class of students and therefore includes also less active SNS users. Recruiting respondents via banners on SNS usually results in a self-selected sample in which highly active users are overrepresented. Moreover, the study compared SNS monitoring with traditional monitoring behavior, and compared SNS jealousy with SNS relationship happiness. Respondents answered the questions for their most used SNS. For the majority, this was Hyves, the largest Dutch SNS. The present study replicated some basic findings of Muise et al. (2009) and thereby generalized these findings to a different SNS.

There are also some limitations. The subgroups that used Facebook or a different SNS were too small to systematically compare users from different SNS. Also, relationship satisfaction in the sample was very high ($M = 4.65$ on a five-point-scale). In a more diverse sample, relationship satisfaction might have a stronger impact on SNS jealousy and SNS relationship happiness. Moreover, more females than males were in the sample. This is typical for students of communication science, but not for the users of SNS. We corrected for this distribution by including gender as control variable in all analysis, but future research should focus more on male users. As a typical student sample, the sample was also relatively young and the respondents did not have relationships that lasted for ten years or longer. However, almost 30% were for three years or longer in their relationship. Currently, people who are already in a relationship for ten or twenty years are probably not very active on Facebook, but it will be an interesting research question for the future to examine the effects of SNS use on long-term relationships.

Another limitation is that all measures were self-report measures; social desirability might therefore have influenced the results. However, emotions like jealousy and behaviors like secretly reading the emails of the partner are difficult, if not impossible, to study with observation. The actual levels of monitoring behavior might be higher, but we have no reason to doubt the correlations we observed. Unfortunately, SNS monitoring behavior and traditional monitoring behavior were measured on slightly different scales because they were taken and adapted from different scales. Future research should use the same answer format and examine whether social acceptance is the reason for the higher prevalence of SNS monitoring.

To conclude, this is the first study on the effects of SNS use and romantic relationships that simultaneously examined SNS jealousy and SNS relationship happiness. SNS users are much more likely to be happy about the publicly displayed affection of their partner than to become jealous. However, the amount of information, the socially accepted way of monitoring the partner, and the public display of potentially jealousy-inducing events can lead to negative experiences, especially among low self-esteem individuals with a high need for popularity.

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Table 1. Means, standard deviations and intercorrelations of the measures

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8
1. login	3.62	1.20								
2. SNS intensity	2.37	1.09	.80**							
3. use profile	2.17	.93	.53**	.62**						
4. use grooming	3.52	1.18	.69**	.71**	.59**					
5. SNS relationship happiness	4.73	1.32	.42**	.34**	.13	.42**				
6. SNS jealousy	2.83	1.19	.34**	.38**	.35*	.43**	.38**			
7. monitoring behavior	2.07	1.36	.13	.11	.16	.22*	.10	.62**		
8. trait jealousy	2.94	1.55	.10	.16	.17	.25*	.14	.48**	.39**	
9. need for popularity	2.82	1.08	.20*	.30*	.35*	.22*	.14	.55**	.28**	.27**

Table 2: Percentages of respondents who monitor their partner offline

	1 = never	2	3	4	5	6	7 = all the time
How often do you look through your partner's drawers, handbag, or pockets?	52.4	26.2	4.9	3.9	9.7	2.9	-
How often do you secretly read the SMS messages on your partner's mobile phone?	42.7	27.2	7.8	4.9	15.5	1	1
How often do you secretly read your partner's emails?	64.1	14.6	3.9	6.8	7.8	1.9	1.0

Table 3. Percentages of respondents who monitor their partner on the SNS

	1 = very unlikely	2	3	4	5	6	7 = very likely
Check your partner's profile on a regular basis.	24.7	17.3	6.2	14.8	21.0	14.8	1.2
Look at your partner's profile page if you are suspicious of his or her activities.	27.2	18.5	13.6	8.6	25.9	2.5	3.7
Monitor your partner's activities on the SNS.	27.2	14.8	9.9	19.8	22.2	6.2	-
Add your partner's friends as friends to keep tabs on your partner.	50.6	18.5	8.6	9.9	8.6	1.2	2.5

Table 4. Final regressions predicting SNS jealousy for low and high self-esteem respondents

Independent variables	Beta	p	Beta	p
	low self-esteem individuals		high self-esteem individuals	
relationship satisfaction	-.03		-.21	†
gender	.19		.08	
trait jealousy	.32	*	-.01	
monitoring behavior	.31	*	.54	**
frequency of login	.08		.35	†
SNS intensity	.09		.18	
SNS use profile	.01		-.28	
SNS use grooming	-.05		.64	**
need for popularity	.48	**	.23	†
	$R^2_{\text{adj}} = .54$		$R^2_{\text{adj}} = .64$	

Note; ** $p < .01$, * $p < .05$, † $p < .10$

Table 5. Final regressions predicting SNS happiness for low and high self-esteem respondents

Independent variables	Beta	p	Beta	p
	low self-esteem individuals		high self-esteem individuals	
relationship satisfaction	.46	*	.09	
gender	.21		.03	
frequency of login	.58	*	.12	
SNS intensity	-.46	†	.14	
SNS use profile	-.13		-.40	
SNS use grooming	.22		.60	*
need for popularity	.28	†	.10	
	$R^2_{\text{adj}} = .35$		$R^2_{\text{adj}} = .24$	

Note; ** $p < .01$, * $p < .05$, † $p < .10$

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